

8.0.0 LVDS REFERENCE – APPLICATION NOTES, STANDARDS, WHITE PAPERS, MODELING INFORMATION AND OTHER DESIGN GUIDES

8.1.0 NATIONAL DOCUMENTS

National also offers more in depth application material on LVDS in the form of application notes, conference papers, white papers and other documents. Please visit the LVDS website for the viewing or downloading of documents. The website's URL is: www.national.com/appinfo/lvds/

8.1.1 National LVDS Application Notes

The following application notes on LVDS are currently available:

AN-Number	Topic	Parts Referenced
AN-971	Introduction to LVDS	DS90C031/DS90C032
AN-977	Signal Quality – Eye Patterns	DS90C031
AN-1040	Bit Error Rate Testing	DS90C031/DS90C032
AN-1041	Introduction to Channel Link	DS90CR2xx
AN-1059	Timing (RSKM) Information	DS90CRxxx
AN-1060	LVDS - Megabits @ milliwatts (EDN Reprint)	
AN-1084	Parallel Application of Link Chips	DS90Cxxx
AN-1088	Bus LVDS/LVDS Signal Quality	DS90LV017/27, DS92LV010A
AN-1108	PCB and Interconnect Design Guidelines	DS90CR2xx
AN-1109	Multidrop Application of Channel Links	DS90CR2xx
AN-1110	Power Dissipation of LVDS Drivers and Receivers	DS90C031/2, DS90LV031A/32A
AN-1115	Bus LVDS and DS92LV010A XCVR	DS92LV010A
AN-1123	Sorting Out Backplane Driver Alphabet Soup	

8.1.2 National Application Notes on Generic Data Transmission Topics

National also offers many application notes devoted to the general topics of data transmission, PCB design and other topics pertaining to Interface. A few of these are highlighted below.

AN-Number	Topic
AN-216	An Overview of Selected Industry Interface Standards
AN-643	EMI/RFI Board Design
AN-806	Data Transmission Lines and Their Characteristics
AN-807	Reflections: Computations and Waveforms
AN-808	Long Transmission Lines and Data Signal Quality
AN-912	Common Data Transmission Parameters and their Definitions
AN-916	A Practical Guide to Cable Selection
AN-972	Inter-Operation of Interface Standards
AN-1111	An Introduction to IBIS Modeling

A complete list of all application notes is located at: http://www.national.com/apnotes/apnotes_all_1.html

8.1.3 National Application Notes on Flat Panel Display Link/LVDS Display Interface

A series of application notes is available on the FPD-Link and LDI chipsets. Please see the FPD website for a list of application notes that are currently available at:

www.national.com/appinfo/fpd/

8.1.4 Conference Papers/White Papers from National

The following conference papers are currently available from the LVDS website at:

www.national.com/appinfo/lvds/

- **BLVDS White Paper**
Signal Integrity and Validation of Bus LVDS (BLVDS) Technology in Heavily Loaded Backplanes.
DesignCon99 Paper
- **BLVDS White Paper**
A Baker's Dozen of High-Speed Differential Backplane Design Tips.
DesignCon2000 Paper
- **BLVDS White Paper**
Bus LVDS Expands Applications for Low Voltage Differential Signaling (LVDS).
DesignCon2000 Paper

8.1.5 Design Tools - RAPIDESIGNERS

The National Semiconductor Transmission Line RAPIDESIGNERS make quick work of calculations frequently used in the design of data transmission line systems on printed circuit boards. Based on principles contained in the National Interface Databook, the Transmission Line RAPIDESIGNER benefits from our many years of experience in designing and manufacturing data transmission and interface products and from helping our valued customers obtain the most from National's Interface Products.

The following calculations can be made with the RAPIDESIGNER for both Microstrip and Stripline geometries.

- Characteristic Impedance (Z_0)
- Intrinsic Delay
- Unterminated Stub Length
- Loaded Impedance
- Differential Impedance
- Propagation Delay
- Reflection Coefficient
- C_0 and L_0
- Reactance Frequency

Two versions of the popular RAPIDESIGNER are available while supplies last. The two RAPIDESIGNERS differ in the dimensions supported; one is for METRIC units while the other supports ENGLISH units.

- RAPIDESIGNER, Metric Units, LIT# 633200-001
- RAPIDESIGNER, English Units, LIT# 633201-001

A full Operation and Application Guide is provided in AN-905. Also included in the application note are the formulas for the calculations, accuracy information, example calculations and other useful information.

To obtain a RAPIDESIGNER, contact the National Customer Support Center in your area.

8.2.0 LVDS STANDARD – ANSI/TIA/EIA-644

Copies of the ANSI/TIA/EIA-644 LVDS Standard can be purchased from Global Engineering Documents. Contact information that was current at the time this book was printed is:

Global Engineering Documents
15 Inverness Way East
Englewood, CO 80112-5704

or call

USA and Canada: 1.800.854.7179
International: 1.303.397.7956

<http://global.ihs.com/>

8.3.0 IBIS I/O MODEL INFORMATION

I/O Buffer Information Specification (IBIS) is a behavioral model specification defined within the ANSI/EIA-656 standard. LVDS IBIS models are available from National's Website which can be used by most simulators/EDA tools in the industry. Please see: <http://www.national.com/models/ibis/Interface/>

Also, visit the ANSI/EIA-656 Website: www.eia.org/EIG/IBIS/ibis.htm for a vendor listing or contact your software vendor.

Chapter 13 of National's 1999 Interface Databook (LIT# 400058) describes IBIS models in detail. A major portion of this material is also covered in National's Application Note AN-1111.

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